4444444444444444444444444444444444444444444444444444444444444444444444444444444444
4444444444444444444444444444444444

NIRSPEC

UCLA Astrophysics Program   U.C. Berkeley   W.M. Keck Observatory

4444444444444444444444444444444444444444444444444444444444444444444444444444444444
4444444444444444444444444444444444

Tim Liu   **April 28, 1997**

NIRSPEC Host Software Review Plan

❗ **Host Software Design**

    ❗ Overall System Design
- ❗ system structure:
  - sub-systems
- ❗ logical data flow:
  - control messages
  - pixel data
- ❗ IPC mechanism:
  - pipe
  - socket
  - RPC
  - IDL call_external
- ❗ client/server architecture:
  - requirements
  - components
  - connectivity
  - security
  - data I/O scheme

    ❗ Sub-system Design
- ❗ GUI:
  - structure & control flow
  - programming tools
- ❗ CLI:
  - structure
  - Tcl
  - interface to GUI
- ❗ k/w library:
  - interface layer
  - keyword definition
- ❗ RPC server:
  - functionality
  - components
  - RPC protocol definition "nrpc.x"
  - protocol compiling tool "rpcgen"
- ❗ host-transputer communication:
  - packet structure and size

- interface routines
▌ quick-look:
- interface to C code

▌ **Implementation**

▌ Programing Environment
 ▌ "nirspec" account:
 - password
 - .cshrc file & .login file
 ▌ /kroot structure:
 - directory structure
 - setup
 ▌ coding standards:
 - naming convention
 - style (indentation, etc)
 - module header & function header
 - inline comments
 ▌ tools:
  ▌ C compiler
  - Sun C compiler: /vela/opt/SUNWspros/cc
  - Gnu C compiler: /opt/local/bin/gcc
  ▌ Dataviews:
  - location
  - use DV-Draw
  - DV-Tools routines
  - linker DVlink
  ▌ make:
  - basics
  ▌ SCCS
  - basics: "sccs create", "sccs get -e", "sccs delta"
  ▌ program checker "lint"
  ▌ debugger: "dbx" & "gdb"

▌ Source Code Locations
 ▌ server code:
 - /kroot/kss/nirspec
 - /kroot/kss/nirspec/btl
 ▌ client code:
 - /kroot/kui/xnirspec
 - DV files: ../views, ../drawings, & ../layouts
 - /kroot/kui/ximrot
 - /kroot/kui/qlook

▌ Other Important Locations
 ▌ data directories:
 - spectrometer data => /kroot/data/spec
 - scam data => /kroot/data/scam

- /tmp directory:
  - frame buffers: FRAME & FRAME2
  - temp fits files: TEMPFITS & TEMPFITS2
  - sockets for CLI, QL and EFS
  - engineering data log: NirspecInstr.log
  - instrument configuration file: Nirspec.cfg

- Program Building
  - server:
    - instrument server make file => makefile
    - simulation server make file => makefile_sim
    - RPC protocol compiler => rpcgen
    - make symbolic links
    - server initialization file => NirspecServerInit
    - client access control file => Authorize
    - syslog setup
  - client:
    - make file
    - make symbolic links
    - client initialization file => NirspecClientInit
    - client start script => RunNirspec

- Program Launching
  - server program:
    - start procedure
    - exit
  - client programs:
    - start procedure
    - exit

Subsystem Programming

- GUI Programming:
  - source modules
  - DV files
  - program description
  - asynchronous I/O
  - callback functions

- CLI Programming:
  - source modules
  - code description
  - program compiling & running

- K/W Library Programming:
  - code description
  - program building